

IN THE CLAIMS:

1.-60. (Cancelled)

61. (Previously presented) A method of manufacturing an active matrix display device having an active matrix circuit and a driving circuit, said method comprising:

forming an ion blocking film over a substrate;

forming a semiconductor layer comprising amorphous silicon over said ion blocking film to a thickness of 200 - 1500 Å;

providing a first laser beam having a first cross section;

expanding said first cross section of the first pulsed laser beam in a first direction;

condensing the expanded laser beam in a second direction orthogonal to said first direction;

irradiating the semiconductor layer with the condensed laser beam having a second cross section at a surface of the semiconductor layer wherein a length of said second cross section in said first direction is longer than that of said first cross section and a width of said second cross section in said second direction is smaller than that of said first cross section;

moving said substrate along a third direction orthogonal to said first direction so that the semiconductor layer is scanned with the condensed laser beam and whereby the semiconductor layer is crystallized; and

forming a plurality of thin film transistors using the crystallized semiconductor layer as at least channel regions of the thin film transistors,

wherein both of the active matrix circuit and said driving circuit include said thin film transistors.

62. (Previously presented) The method according to claim 61 wherein said laser beam is an excimer laser beam.

63. (Withdrawn) The method according to claim 61 wherein said ion blocking film comprises silicon oxide.

64. (Previously presented) The method according to claim 61 wherein said blocking film comprises silicon nitride.

65. (Withdrawn) The method according to claim 61 wherein said ion blocking film comprises non-doped silicon oxide.

66. (Previously presented) A method of manufacturing an active matrix display device having an active matrix circuit and a driving circuit, said method comprising:

forming an ion blocking film over a substrate to a thickness of 1000 - 4000 Å;
forming a semiconductor layer comprising amorphous silicon over said ion blocking film to a thickness of 200 - 1500 Å;

providing a first laser beam having a first cross section;
expanding said first cross section of the first pulsed laser beam in a first direction;
condensing the expanded laser beam in a second direction orthogonal to said first direction;

irradiating the semiconductor layer with the condensed laser beam having a second cross section at a surface of the semiconductor layer wherein a length of said second cross section in said first direction is longer than that of said first cross section and a width of said second cross section in said second direction is smaller than that of said first cross section;

moving said substrate along a third direction orthogonal to said first direction so that the semiconductor layer is scanned with the condensed laser beam and whereby the semiconductor layer is crystallized; and

forming a plurality of thin film transistors using the crystallized semiconductor layer as at least channel regions of the thin film transistors,

wherein both of the active matrix circuit and said driving circuit include said thin film transistors.

67. (Previously presented) The method according to claim 66 wherein said laser beam is an excimer laser beam.

68. (Withdrawn) The method according to claim 66 wherein said ion blocking film comprises silicon oxide.

69. (Previously presented) The method according to claim 66 wherein said blocking film comprises silicon nitride.

70. (Withdrawn) The method according to claim 66 wherein said ion blocking film comprises non-doped silicon oxide.

71. (Previously presented) A method of manufacturing an active matrix display device having an active matrix circuit and a driving circuit, said method comprising:

forming an ion blocking film over a substrate;

forming a semiconductor layer comprising amorphous silicon over said ion blocking film to a thickness of 200 - 1500 Å;

providing a first laser beam having a first cross section wherein said laser beam is a pulsed laser beam having a wavelength of not longer than 400 nm;

expanding said first cross section of the first pulsed laser beam in a first direction;

condensing the expanded laser beam in a second direction orthogonal to said first direction;

irradiating the semiconductor layer with the condensed laser beam having a second cross section at a surface of the semiconductor layer wherein a length of said second cross section in said first direction is longer than that of said first cross section and a width of said second cross section in said second direction is smaller than that of said first cross section;

moving said substrate along a third direction orthogonal to said first direction so that the semiconductor layer is scanned with the condensed laser beam and whereby the semiconductor layer is crystallized; and

forming a plurality of thin film transistors using the crystallized semiconductor layer as at least channel regions of the thin film transistors,

wherein both of the active matrix circuit and said driving circuit include said thin film transistors.

72. (Previously presented) The method according to claim 71 wherein said laser beam is an excimer laser beam.

73. (Withdrawn) The method according to claim 71 therein said ion blocking film comprises silicon oxide.

74. (Previously presented) The method according to claim 71 wherein said blocking film comprises silicon nitride.

75. (Withdrawn) The method according to claim 71 wherein said ion blocking film comprises non-doped silicon oxide.

76. (Previously presented) A method of manufacturing an active matrix display device having an active matrix circuit and a driving circuit, said method comprising:
forming an ion blocking film over a glass substrate containing alkali ions;
forming a semiconductor layer comprising amorphous silicon over said ion blocking film to a thickness of 200 - 1500 Å;

providing a first laser beam having a first cross section;
expanding said first cross section of the first pulsed laser beam in a first direction;
condensing the expanded laser beam in a second direction orthogonal to said first direction;

irradiating the semiconductor layer with the condensed laser beam having a second cross section at a surface of the semiconductor layer wherein a length of said second cross section in said first direction is longer than that of said first cross section and a width of said second cross section in said second direction is smaller than that of said first cross section;

moving said substrate along a third direction orthogonal to said first direction so that the semiconductor layer is scanned with the condensed laser beam and whereby the semiconductor layer is crystallized; and

forming a plurality of thin film transistors using the crystallized semiconductor layer as at least channel regions of the thin film transistors,

wherein both of the active matrix circuit and said driving circuit include said thin film transistors.

77. (Previously presented) The method according to claim 76 wherein said laser beam is an excimer laser beam.

78. (Withdrawn) The method according to claim 76 wherein said ion blocking film comprises silicon oxide.

79. (Previously presented) The method according to claim 76 wherein said blocking film comprises silicon nitride.

80. (Withdrawn) The method according to claim 76 wherein said ion blocking film comprises non-doped silicon oxide.

81. (Previously presented) A method of manufacturing an active matrix display device having an active matrix circuit and a driving circuit, said method comprising:

forming an ion blocking film over a glass substrate containing alkali ions to a thickness of 1000 - 4000 Å;

forming a semiconductor layer comprising amorphous silicon over said ion blocking film to a thickness of 200 - 1500 Å;

providing a first laser beam having a first cross section;

expanding said first cross section of the first pulsed laser beam in a first direction;

condensing the expanded laser beam in a second direction orthogonal to said first direction;

irradiating the semiconductor layer with the condensed laser beam having a second cross section at a surface of the semiconductor layer wherein a length of said second cross section in said first direction is longer than that of said first cross section and a width of said second cross section in said second direction is smaller than that of said first cross section;

moving said substrate along a third direction orthogonal to said first direction so that the semiconductor layer is scanned with the condensed laser beam and whereby the semiconductor layer is crystallized; and

forming a plurality of thin film transistors using the crystallized semiconductor layer as at least channel regions of the thin film transistors,

wherein both of the active matrix circuit and said driving circuit include said thin film transistors.

82. (Previously presented) The method according to claim 81 wherein said laser beam is an excimer laser beam.

83. (Withdrawn) The method according to claim 81 wherein said ion blocking film comprises silicon oxide.

84. (Previously presented) The method according to claim 81 wherein said blocking film comprises silicon nitride.

85. (Withdrawn) The method according to claim 81 wherein said ion blocking film comprises non-doped silicon oxide.

86. (Previously presented) A method of manufacturing an active matrix display device having an active matrix circuit and a driving circuit, said method comprising:

- forming an ion blocking film over a glass substrate containing alkali ions;
- forming a semiconductor layer comprising amorphous silicon over said ion blocking film to a thickness of 200 - 1500 Å;
- providing a first laser beam having a first cross section wherein said laser beam is a pulsed laser beam having a wavelength of not longer than 400 nm;
- expanding said first cross section of the first pulsed laser beam in a first direction;
- condensing the expanded laser beam in a second direction orthogonal to said first direction;
- irradiating the semiconductor layer with the condensed laser beam having a second cross section at a surface of the semiconductor layer wherein a length of said second cross section in said first direction is longer than that of said first cross section and a width of said second cross section in said second direction is smaller than that of said first cross section;
- moving said substrate along a third direction orthogonal to said first direction so that the semiconductor layer is scanned with the condensed laser beam and whereby the semiconductor layer is crystallized; and
- forming a plurality of thin film transistors using the crystallized semiconductor layer as at least channel regions of the thin film transistors,

wherein both of the active matrix circuit and said driving circuit include said thin film transistors.

87. (Previously presented) The method according to claim 86 wherein said laser beam is an excimer laser beam.

88. (Withdrawn) The method according to claim 86 wherein said ion blocking film comprises silicon oxide.

89. (Previously presented) The method according to claim 86 wherein said blocking film comprises silicon nitride.

90. (Withdrawn) The method according to claim 86 wherein said ion blocking film comprises non-doped silicon oxide.

91. (Previously presented) The method according to claim 61 further comprising a step of removing a peripheral portion of the expanded laser beam through a mask before the step of condensing the expanded laser beam wherein said peripheral portion includes at least edges of the expanded laser beam extending in said first direction.

92. (Previously presented) The method according to claim 66 further comprising a step of removing a peripheral portion of the expanded laser beam through a mask before the step of condensing the expanded laser beam wherein said peripheral portion includes at least edges of the expanded laser beam extending in said first direction.

93. (Previously presented) The method according to claim 71 further comprising a step of removing a peripheral portion of the expanded laser beam through a mask before the step of condensing the expanded laser beam wherein said peripheral portion includes at least edges of the expanded laser beam extending in said first direction.

94. (Previously presented) The method according to claim 76 further comprising a step of removing a peripheral portion of the expanded laser beam through a mask before the step of condensing the expanded laser beam wherein said peripheral portion includes at least edges of the expanded laser beam extending in said first direction.

95. (Previously presented) The method according to claim 81 further comprising a step of removing a peripheral portion of the expanded laser beam through a mask before the step of condensing the expanded laser beam wherein said peripheral portion includes at least edges of the expanded laser beam extending in said first direction.

96. (Previously presented) The method according to claim 86 further comprising a step of removing a peripheral portion of the expanded laser beam through a mask before the step of condensing the expanded laser beam wherein said peripheral portion includes at least edges of the expanded laser beam extending in said first direction.

97. -100. (Cancelled)

101. (Withdrawn) The method according to claim 76 wherein said glass substrate is a soda-lime glass.

102. (Previously presented) The method according to claim 81 wherein said glass substrate is a soda-lime glass.

103. (Previously presented) The method according to claim 86 wherein said glass substrate is a soda-lime glass.

104. (Previously presented) The method according to claim 61 wherein said active matrix display device is a liquid crystal device.

105. (Previously presented) The method according to claim 66 wherein said active matrix display device is a liquid crystal device.

106. (Previously presented) The method according to claim 71 wherein said active matrix display device is a liquid crystal device.

107. (Previously presented) The method according to claim 76 wherein said active matrix display device is a liquid crystal device.

108 (Previously presented) The method according to claim 81 wherein said active matrix display device is a liquid crystal device.

109. (Previously presented) The method according to claim 86 wherein said active matrix display device is a liquid crystal device.

110. -130. (Cancelled)

131. (Previously presented) The method according to claim 61 wherein said laser beam is a pulsed laser beam and said substrate is moved in a stepwise manner.

132. -139. (Cancelled)